

CLAIMS

1. An inkjet circuit cleaning apparatus comprising a circuit holder, a laser for generating a laser beam, and an optics subsystem arranged to focus and scan the laser beam onto a circuit surface at the circuit holder.

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2. An apparatus as claimed in claim 1 in which the optics subsystem includes a beam splitter for splitting off a portion of the beam to regulate the laser beam power.

10 3. An apparatus as claimed in claim 1 in which the optics subsystem includes a scanner arranged to scan the laser beam across a circuit surface.

4. An apparatus as claimed in claim 1 in which the optics subsystem includes a lens system for adjusting laser beam size, shape and incident fluence.

15 5. An apparatus as claimed in claim 1 further including a diagnostic subsystem comprising a sensor arranged to sense whether the circuit surface has been cleaned.

6. An apparatus as claimed in claim 5 in which the sensor comprises one or more of an acoustic sensor, a plasma signal sensor or a surface pattern inspection monitor.

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7. An apparatus as claimed in claim 5 further including an apparatus controller arranged to receive a signal from the sensor and control the cleaning operation accordingly.

25 8. An apparatus as claimed in claim 1 in which the laser has a pulse duration of nanoseconds scale and a wavelength selected from the visible to the infrared range.

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9. An apparatus as claimed in claim 1 in which the circuit holder is arranged to replace a cleaned circuit by a contaminated circuit.

10. An apparatus as claimed in claim 1 further including a contaminant removal
5 mechanism.

11. An apparatus as claimed in claim 10 in which the contaminant removal mechanism comprises one of a vacuum source or a gas stream source.

10 12. An apparatus as claimed in claim 10 further comprising a transparent protective cover between the circuit holder and the optics system to trap escaped contaminant.

13. An apparatus as claimed in claim 1 in which the inkjet circuit comprises a flexible circuit for an inkjet printer cartridge.

15 14. A method of cleaning an inkjet circuit comprising the steps of retaining a circuit to be cleaned in a circuit holder, generating a laser beam from a laser, and focusing and scanning the laser beam on the circuit surface via an optics subsystem.

20 15. A method as claimed in claim 14 further comprising the steps of detecting when a portion of the circuit surface is cleaned and controlling the galvanometer to scan the beam across a non-cleaned portion of the surface.

25 16. A method as claimed in claim 14 further comprising the step of detecting when a circuit is fully cleaned, and controlling the circuit holder to replace the circuit with a non-cleaned circuit.

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17. A method as claimed in claim 14 for cleaning a flexible circuit of an inkjet printer cartridge.